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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/881,974      | 06/15/2001  | Michiaki Iha         | P/1071-1380         | 7656             |

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| EXAMINER                       |
|--------------------------------|
| BLACKWELL RUDASIL, GWENDOLYN A |

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1775     |              |

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/881,974

Applicant(s)

IHA, MICHIAKI

Examiner

Gwendolyn A. Blackwell-Rudasill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless –*

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

2. Claims 1-14 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Application Publication no. 08-236936, JP '936.

JP '936 disclose a multilayer laminated glass ceramic circuit board with small contraction of the substrate wherein the glass components of the insulating layers are different types of glass. The laminated glass ceramic circuit board comprises two or more layers with each having a glass component with glass transition temperatures that differ by 80°C or more, (pages 6-7, sections 0009-0010). Contraction of the laminated circuit board is kept to a minimum by layering the insulating layers containing different glass ceramic components with different glass transition temperatures, meeting the requirements of claims 1-2 and 5, (pages 7-8, sections 0011-0014). The glass component consists of a low melting point glass ceramic, meeting the requirements of claim 7, (page 10, section 0024). At least two kinds of glass ceramic serve as the insulating layers, (section 0029). The glass transition temperature of the first glass is 740°C and the temperature for the second glass is 600°C, meeting the requirements of claim 4, (pages 15-16, sections 0039-0044).

In addition, JP '936 disclose that as long as the contraction stress is eased at the time of baking the insulating layers together, the higher temperature glass can be in any position,

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meeting the requirements of claim 3, (page 26, section 0079). The content of glass in the first glass containing layer is about 70% while the glass in the second glass layer is about 50%, with the glass content of both layers having to be between 50 and 90 wt%, meeting the requirements of claims 8-14, (pages 14-16, sections 0037-0043).

JP '936 further disclose that an ethylenic unsaturated compound equipped with the acrylic acid or a carboxy group like a methacrylic acid type polymer can be added to the glass paste, meeting the requirements of claim 25, (pages 14-15, section 0038).

While JP '936 does not specifically disclose the physical property limitations of the wettability and the contact angle, those properties would be inherently present in the prior art. JP '936 disclose a glass ceramic circuit board wherein the laminated layers of the circuit board contain at least two different glass components which help to reduce the shrinkage of the laminated board by dispersing the shrinkage stresses generated in the glass ceramic layers during baking. By the components and configuration, the laminated circuit board would have decreased warpage due to the reduction in shrinkage, thereby demonstrating that the glass ceramic layers have increased wettability relative to the layers that each layer comes into contact and therefore decreased contact angles.

### ***Response to Arguments***

3. Applicant's arguments filed May 19, 2003 have been fully considered but they are not persuasive.

Applicant asserts that (1) the multilayer circuit component of the present invention is formed by a sequential baking method and (2) the JP '936 reference does not disclose

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information in regards to the wettability of the first glass containing layer relative to the ceramic substrate and the wettability of the second glass containing layer relative to the first glass containing layer.

As to the first contention, the claims as presented are product claims with no mention of method steps. In addition, there has been no showing by Applicant that Applicant's multilayer circuit component would not be attainable if the layers were baked at the same time as disclosed in JP '936.

Furthermore, even though JP '936 bakes the multilayer circuit component after all layers have been deposited, the glass containing layers contain different materials relative to each other. Because the glass containing layers contain different materials it would be understood that each layer would have a different wettability relative to other layers. In addition, the purpose of JP '936 is to create a multilayer circuit component with a low shrinkage factor, (page 22, section 0065), which is in line with the purpose of the present application. Because there is low shrinkage in the JP '936 invention, the shrinkage rates of the first and second glass containing layers would need to be about the same to prevent/limit warpage.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn A. Blackwell-Rudasill whose telephone number is (703) 305-9741. The examiner can normally be reached on Monday - Thursday; 6:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gwendolyn A. Blackwell-Rudasill  
Examiner  
Art Unit 1775

  
gbr

August 7, 2003

  
JOHN J. ZIMMERMAN  
PRIMARY EXAMINER